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ABSTRACT

This report explains the development of an experimental project that is one of five such projects making up the Dakota State Teacher's Assistant Series (Dakota State College, Madison, South Dakota). The projects use interactive computer-controlled video programs and involve the social sciences. The project highlighted here involves educational psychology students and their observations of specific behaviors in the classroom. Five phases in the development of the modules are described: (1) identification of objectives; (2) writing of textual materials; (3) development of the logic diagram; (4) shooting video scenes; and (5) using the authoring package. The content of the first three modules is briefly described, and a discussion of problems associated with the project concludes the report. A list of persons to contact for additional information on the project is attached. (RP)

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INTERACTIVE VIDEO IN THE CLASSROOM

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INTERACTIVE VIDEO IN THE CLASSROOM

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IN THE SPRING OF 1984, THREE OF THE FACULTY FROM D.S.C. PRESENTED A DRAFT FOR DEVELOPING A SERIES OF INTERACTIVE COMPUTER-CONTROLLED VIDEO PROGRAMS THAT COULD BE USED IN AREAS INVOLVING THE SOCIAL SCIENCES TO THE PRESIDENT OF DAKOTA STATE COLLEGE. THIS PROJECT IS THE RESULT OF A PROPOSAL THAT WAS PRESENTED AND IS ONE OF FIVE EXPERIMENTAL PROJECTS FUNDED INVOLVING THE INTEGRATION OF COMPUTERS INTO EVERYDAY USAGE IN THE CLASSROOMS AT D.S.C. THESE FIVE PROJECTS HAVE SINCE BEEN CALLED THE DAKOTA STATE TEACHER'S ASSISTANT SERIES.

IN THE PLANNING SESSIONS THAT FOLLOWED, THE COMMITTEE, COMPOSED OF MRS. DOROTHY SPETHMANN, ASSISTANT PROFESSOR OF EDUCATION; DR. ROGER REED, ASSOCIATE PROFESSOR OF SOCIOLOGY; AND MYSELF, DR. CHUCK MCCLUSKEY, PROFESSOR OF EDUCATION AND PSYCHOLOGY, IDENTIFIED EDUCATIONAL PSYCHOLOGY AS THE COURSE WHEREIN THE INTERACTIVE COMPUTER-ASSISTED VIDEO WOULD LIKELY BE MOST BENEFICIAL.

HISTORICALLY, STUDENTS IN EDUCATIONAL PSYCHOLOGY HAVE BEEN REQUIRED TO COMPLETE AN ON-SITE OBSERVATION OF STUDENTS IN THE CLASSROOM TO OBSERVE STUDENT BEHAVIORS AND HELP THEM DETERMINE IF THEY **REALLY** WANTED TO BECOME TEACHERS. ALL STUDENTS WERE REQUIRED TO KEEP A LOG-BOOK. THIS WAS TURNED IN WHEN THE STUDENT COMPLETED THE INDIVIDUAL ORAL NEAR THE CLOSE OF THE SEMESTER. THE CONTENT AND OBSERVATIONS OF THE LOG-BOOKS BECAME PART OF THE REQUIREMENTS OF THE CLASS.

THIS OBSERVATION EXERCISE WAS NOT PROVIDING ALL STUDENTS WITH A CONSISTENT STANDARD OF EXPERIENCES. THE QUALITY OF THEIR EXPERIENCE SEEMED MORE A FUNCTION OF THE PERSONALITY OF THE TEACHER IN THE CLASSROOM THAN WHAT WAS HAPPENING IN THE LEARNING ACTIVITIES. BY USING VIDEO SEGMENTS OF SPECIFICALLY IDENTIFIED BEHAVIORS, WE FELT WE COULD "STANDARDIZE" THE EXPOSURE AND, BY ALLOWING STUDENTS TO CHOOSE FROM A VARIETY OF RESPONSES, DETERMINE THEIR LEVEL OF SKILL IN COUNTING OR QUANTIFYING THE BEHAVIORS EXHIBITED. IN THIS WAY, STUDENT PERFORMANCE COULD BE ASSESSED AND UNIFORMITY OF EXPERIENCES ACHIEVED.

THE COMMITTEE USED BRAINSTORMING TO IDENTIFY THE CONTENT, FORMAT, AND PROCEDURES FOR USING VIDEO SEGMENTS THAT WERE TIED TO TEACHER-IDENTIFIED MATERIALS ON THE COMPUTER. SINCE WE ELECTED **NOT** TO FOLLOW ANY ONE TEXTBOOK, THE MATERIALS HAD TO BE "STAND ALONE" MATERIALS. ACTIVITIES THAT COULD BE USED BY STUDENTS IN AN OUT-OF-CLASS SETTING, AT THEIR OWN TIME AND LEISURE.

THREE INDIVIDUAL MODULES WERE IDENTIFIED AND WORK BEGUN ON THEIR DEVELOPMENT. THIS REPORT IS BEING PRESENTED TO YOU WITHOUT THE BENEFITS OF SEEING THE INTERACTIVE SYSTEM IN OPERATION. I SHALL TRY TO DESCRIBE AS BEST I CAN HOW THE SYSTEM WORKS AND WHAT SKILLS AND PROFICIENCIES A TEACHER MUST HAVE TO DEVELOP AN INTERACTIVE COMPUTER ASSISTED VIDEO IN HIS/HER SUBJECT/CLASS AREA.

HARDWARE USED

MOST OF THE 160 MICROCOMPUTERS AT D.S.C. ARE IBM OR IBM-COMPATIBLE, THEREFORE THE PROGRAMS WERE DESIGNED FOR USE WITH IBM's. FOR THE VIDEO, WE ELECTED TO USE ONE-HALF INCH TAPE SINCE THAT IS THE MOST COMMONLY USED KIND OF VCR'S IN THE SURROUNDING SCHOOLS AND INSTITUTIONS.

WORK ON EACH MODULE PROGRESSED USING THE FOLLOWING SEQUENCE:

1. IDENTIFICATION OF OBJECTIVES
2. WRITING OF TEXTUAL MATERIALS
3. DEVELOPMENT OF LOGIC DIAGRAM
4. SHOOTING VIDEO SCENES
5. USING THE AUTHORING PACKAGE

I WILL USE MODULE ONE (1) FOR ILLUSTRATIONS THROUGHOUT THE REMAINDER OF THIS PAPER.

MODULE ONE

MODULE ONE DEALS WITH DEVELOPING SKILLS IN OBSERVING OTHER PERSONS AT WORK. THE SPECIFIC SKILLS DEMONSTRATED BY STUDENTS COMPLETING THIS MODULE INCLUDE:

1. BE ABLE TO IDENTIFY BEHAVIORS THAT ARE MEASURABLE AND QUANTIFIABLE.
2. COMPLETE A TIME SAMPLING OF AN OBSERVABLE BEHAVIOR.
3. COMPLETE A FREQUENCY COUNT ON AN IDENTIFIED BEHAVIOR.
4. WRITE AN ANECDOTAL RECORD TO BE HANDED IN TO THE INSTRUCTOR FOR COMMENTS.

DEVELOPING TEXTUAL MATERIALS

FOUR (4) KINDS OF SCREENS ARE IDENTIFIED AND FACILITATE THE DEVELOPMENT OF CURRICULAR MATERIALS. THEY ARE:

1. **TEXT SCREENS**--MAY BE USED FOR INFORMATION, DATA, GRAPHICS, REINFORCING COMMENTS, OR MERELY COMMENTS.
2. **QUESTION FRAMES**--DISPLAY THE QUESTIONS THE LEARNER WILL CONSIDER AND SELECT THE RESPONSE HE/SHE "THINKS" BEST.

3. **VCR SCREENS**--THESE SCREENS IDENTIFY AN UP-COMING VIDEO SEGMENT, AND ALSO IDENTIFY WHEN THE VCR SEGMENT IS COMPLETED.

4. **PROGRAMMING SCREENS**--THESE SCREENS PROVIDE THE DIRECTIONS FOR BRANCHING TO THE NEXT PORTION OF THE PROGRAM.

DEVELOPING THE LOGIC DIAGRAM

THE LOGIC DIAGRAM IS A GRAPHIC REPRESENTATION OF THE POSSIBILITIES AVAILABLE TO THE STUDENT AT ALL TIMES. EACH CHOICE IS IDENTIFIED AND FOLLOWED THROUGH-OUT THE COMPLETE COURSE OF THE POSSIBILITIES AVAILABLE. THE LOGIC DIAGRAM IS **ABSOLUTELY ESSENTIAL** FOR THE PERSON WHO WILL BE DOING THE PROGRAMMING. IT PROVIDES THE DIRECTION THAT YOU WANT HIM/HER TO FOLLOW IN DIRECTING THE COMPUTER TO THE NEXT SCREEN.

SHOOTING THE VIDEO SCENES

IN THIS PHASE OF THE PROJECT, WE ELECTED TO CALL IN A PERSON WHO HAD SOME EXPERTISE WITH VIDEO EQUIPMENT, EDITING, AND, IN PARTICULAR, SHOOTING SCENES WITH THE VIDEO CAMERA. IT PAID OFF VERY HANDSOMELY. IT IS EXTREMELY IMPORTANT THAT THE AUTHORS OF THE TEXTUAL MATERIALS AND THE CAMERA-PERSON UNDERSTAND THE OBJECTIVES AND **WHAT** THE SCENE IS TO DEPICT. SINCE THE CAMERA CAPTURES THE ACTIONS, IT MAY BE UNNECESSARY TO HAVE ANY VOICE WITH THE VIDEO. OUR CONSULTANT DID THE STORYBOARDING, MODIFYING OF SCRIPT TO MEET OUR SPECIFICATIONS, ENCOURAGED US TO MAKE SURE EACH SCENE WAS EXACTLY AS WE WANTED IT TO BE, AND EDITED THE TAPE INTO ITS FINAL FORM.

USING THE AUTHORING PACKAGE

WE, AT DAKOTA STATE, ARE FORTUNATE TO HAVE ON-CAMPUS A PERSON WHO FUNCTIONS AS AN ACADEMIC PROGRAMMER/ANALYST. HIS KNOWLEDGE, EXPERTISE, AND EXPERIENCES IN WORKING WITH PROGRAMMING, VIDEO, AND THE OVERALL ELECTRONICS IN GENERAL HAVE KEPT THE PROJECT FROM DISASTER MANY TIMES. HE, ALONG WITH HIS ASSOCIATES, DEVELOPED THE **INSTRUCTOR'S DISK** WHICH CONTAINS THE PROGRAMMING INSTRUCTIONS. IN DEVELOPING THE TEXTUAL MATERIALS FOR THE PROJECT, EACH SCREEN WAS LIMITED TO A MAXIMUM OF SEVENTEEN (17) LINES OF MATERIAL. EACH SCREEN WAS IDENTIFIED BY A LETTER AND A NUMBER. THE LETTER DESIGNATED THE FUNCTION (TEXTUAL, QUESTION, VCR, OR PROGRAMMING) WHILE THE NUMBER IDENTIFIED THE TEXTUAL SEQUENCE AND WAS IDENTIFIED ON THE LOGIC DIAGRAM AS WELL AS THE PRINTOUT FROM THE COMPUTER.

OVERVIEW OF PROJECT:

THIS PROJECT WAS CONCEIVED AND DEVELOPED UNDER OTHER-THAN-IDEAL SITUATIONS. WE WERE ILL-PREPARED TO TAKE ON SUCH A MONUMENTAL TASK. WE DID NOT HAVE THE TECHNICAL "KNOW-HOW" NECESSARY FOR VIDEO WORK THAT IS REQUIRED. WE RELIED **VERY HEAVILY** ON OUR PROGRAMMER/ANALYST, AND WE TRIED TO DO TOO MUCH IN TOO SHORT A TIME. AS A RESULT WE WERE FREQUENTLY FRUSTRATED. WE DID, HOWEVER, PRODUCE TWO OF THE TARGETED THREE MODULES. I WILL ATTEMPT TO EXPLAIN THE UNIQUENESS OF EACH OF THE THREE MODULES.

MODULE ONE

THIS DEALS WITH DEVELOPING OBSERVATION SKILLS AND USES STRICTLY VIDEO (NO SOUND TRACK IS INVOLVED). STUDENTS OBSERVE THE VIDEO SEGMENTS TO DEVELOP SKILLS IN IDENTIFYING WHAT CAN BE COUNTED AND MEASURED, HOW TO COMPLETE A TIME SAMPLING, A FREQUENCY COUNT, AND WHAT ITEMS MUST BE IN AN ANECDOTAL RECORD.

MODULE TWO

THIS MODULE IS STILL UNDER DEVELOPMENT. IN THIS MODULE WE "DUB IN" SOUND BEHIND THE VIDEO SCENE. WE HAVE EXPERIENCED DIFFICULTIES IN THIS MODULE BECAUSE WE USED THE AUDIO TRACK FOR ADDRESSING THE STARTING AND STOPPING OF THE VIDEO BY THE COMPUTER IN MODULE ONE. THIS MODULE DEALS WITH THE ANALYSIS OF TASKS REQUIRED BY STUDENTS. IT BUILDS ON THE OBSERVATION SKILLS IN MODULE ONE, AND MAY REQUIRE A MAJOR REVISION OR MODIFICATION BEFORE WE ATTEMPT CLOSURE.

MODULE THREE

THIS MODULE USES STRICTLY "LIVE" VIDEO. WE HIRED ACTORS TO PORTRAY THE SCENES AND "SHOT" THE SCENES LOCALLY AT THE HIGH SCHOOL. AGAIN WE EXPERIENCED DIFFICULTY, BUT THIS WAS WITH THE "BOARD" WE DEVELOPED TO ADVANCE, MOVE, OR STOP THE VIDEOTAPE WITHIN THE LIMITS WE HAD IDENTIFIED. OF THE THREE MODULES, I, PERSONALLY, BELIEVE THIS WILL BE THE BEST ACCEPTED BY THE STUDENTS. FROM AN EDUCATIONAL STANDPOINT, HOWEVER, THE OBJECTIVES RE NOT AS SPECIFIC AS EITHER MODULE ONE OR TWO.

SUMMARY:

I HAVE FOUND THE EXPERIENCES IN WORKING WITH INTERACTIVE VIDEO TO BE INTRIGUING, FASCINATING, AND IT HAS OPENED AN ENTIRELY NEW WORLD TO ME. I FEEL THE PROJECT HAS ASKED MANY MORE QUESTIONS THAN WE HAVE ANSWERED. I AM CONVINCED THAT THE VIDEO-DISK WITH THE RAPID ACCESS CAPABILITIES, THE EXTREMELY LARGE NUMBER OF VISUAL STORAGE, AND THE NEARLY FLAWLESS ADDRESSING SYSTEM WILL PLAY A VERY IMPORTANT PART IN THE EDUCATION OF THE FUTURE. I AM VERY THANKFUL THAT I HAVE HAD THESE OPPORTUNITIES TO PLAY A SMALL PART IN THE DEVELOPMENT OF SUCH PROJECTS. THANK YOU FOR YOUR ATTENTION TO THE CONTENT OF THIS PAPER.

FOR ADDITIONAL INFORMATION PLEASE CONTACT:

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